

Patent claims

1. An automation system for movement control with the aid of profiles (P), the profiles (P) being processed on a time basis or position basis and it being possible for their argument variables and/or function variables to be used without units.
2. An automation system for controlling the movement of at least one movable machine element, characterized in that a profile (P) for movement control can be prescribed as a function of a higher degree and at least freely parameterized or created, the profile (P) having at least one command variable (L) and a secondary variable (F), the command variable (L) representing a physical variable that is different from the secondary variable (F) and at least one of the variables being a time-dependent variable or a location-dependent variable.
3. The automation system as claimed in claim 2, characterized in that the function of a higher degree is a spline interpolation.
4. The automation system as claimed in claim 2, characterized in that the function of a higher degree is a polynomial interpolation.
5. The automation system as claimed in claim 4, characterized in that the polynomial interpolation can be formed up to at least the 6th order.
6. The automation system as claimed in one of claims 2 to 5, characterized in that the function has a trigonometric element.
7. The automation system as claimed in one of claims 2 to 6, characterized in that the profile has segments (51, 52, 53, 54) and segments (51, 52, 53, 54) of the profile can be formed from functions, it being possible for the profile to be formed by combination of the segments (51, 52, 53, 54).

8. The automation system as claimed in claim 8, characterized in that at least two individual unconnected segments (51, 53) of polynomial functions can be connected with a transitional segment (SUE), the transitional segment (SUE) being at least a function of a spline interpolation.
9. The automation system as claimed in one of claims 2 to 8, characterized in that the movement control of the movable machine element relates to an axis and the profile relates to this axis.
10. A method for controlling the movement of at least one movable machine element of an automated machine tool or an automated production machine or an automated manipulator, wherein a profile (P) for movement control is prescribed as a function of a higher degree and at least freely parameterized or created, the profile (P) having at least one command variable (L) and a secondary variable (F), wherein a physical variable that is different from the secondary variable (F) is determined as the command variable (L) and wherein a time-dependent variable or a location-dependent variable is determined as at least one of the variables.
11. The method as claimed in claim 10, characterized in that a spline interpolation is used as the function of a higher degree.
12. The method as claimed in claim 10, characterized in that a polynomial interpolation is used as the function of a higher degree.
13. The method as claimed in one of claims 10 to 12, characterized in that the function is given a trigonometric element.
14. The method as claimed in one of claims 10 to 13, characterized in that segments (51, 52, 53, 54) of the profile (P) are formed by functions, after which the profile (P) is formed by combination of the segments (51, 52, 53, 54).

15. The method as claimed in claim 14, characterized in that at least two individual unconnected segments (51, 53) of polynomial functions are connected with a transitional segment (SUE), the function of a spline interpolation being used as the transitional segment (SUE).
16. The method as claimed in one of claims 10 to 15, characterized in that a physical variable with respect to the position or the movement of an axis is described by the profile (P).
17. The method as claimed in one of claims 10 to 16, characterized in that the profile (P) is defined without any units.
18. The method as claimed in one of claims 10 to 17, characterized in that the profile (P) is defined from a user program during a program processing phase.
19. The method as claimed in one of claims 10 to 18, characterized in that the profile is created by a graphic tool in an engineering system.
20. The use of the automation system or the method as claimed in one of the preceding claims in the case of a machine tool or production machine or in the case of a manipulator.
21. An engineering system for creating a profile (P) for movement control as a freely creatable function of a higher degree, the profile (P) having at least one command variable (L) and a secondary variable (F), the command variable (L) representing a physical variable that is different from the secondary variable (F) and at least one of the variables being a time-dependent variable or a location-dependent variable.